

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 09-142932

(43)Date of publication of application : 03.06.1997

(51)Int.Cl. C04B 35/52
B23B 27/14
B23B 27/20

(21)Application number : 07-328318 (71)Applicant : SUMITOMO ELECTRIC IND LTD

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(54) DIAMOND SINTERED COMPACT AND ITS PRODUCTION

(57)Abstract:

PROBLEM TO BE SOLVED: To produce a high strength diamond sintered compact excellent in chipping and heat resistances by sintering a powdery mixture of powder of boron oxide or boric acid with powder of diamond or nondiamond carbon under specified conditions.

SOLUTION: Powder of boron oxide and/or boric acid as a sintering aid is mixed with powder of diamond and/or nondiamond carbon and the resultant powdery mixture is sintered by holding under conditions of pressure and temp. in a region in which diamond is thermodynamically stable to obtain the objective sintered compact consisting of 0.1-30vol.% material made of a boron-oxygen compd. and the balance diamond. In the case of <0.1vol.%, the suitability of diamond particles to bonding, that is, sintering is deteriorated. In the case of >30vol.%, strength and wear resistance are deteriorated by the effect of an excess of the boron-oxygen compd.

LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of
rejection]

[Kind of final disposal of application other than
the examiner's decision of rejection or
application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's
decision of rejection]

[Date of requesting appeal against examiner's
decision of rejection]

[Date of extinction of right]

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